Transcript
Video: Developing user requirements: accessibility and usability needs (1).
Series: User requirements.
Universidad Nacional de Educación a Distancia (UNED).

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Hello. I am Alejandro Rodríguez Ascaso, lecturer at the Department of Artificial Intelligence at UNED. This is the first in a series of videos about the development of user requirements and, more specifically, accessibility and usability needs.

We are going to review the principles of accessibility.

Perception. Perception has an interaction component in which several aspects play a role, namely: the existence and position of the system's controls, the state the system is in, and the feedback produced after any control is activated. Perception also has a modality component — whether the perception concerns visual information, sound information, or tactile information.

Activation. Activation occurs when the user uses one of the system's functions. Users must be able to use all the system's functions or actions, do so within the allowed time, avoid the accidental activation of controls, and we must also be able to recover from our own errors when using the system.

Comprehension. Comprehension involves, on the one hand, understanding the output information produced by the system, and on the other, understanding in general how the product is used.

There is another requirement associated with other chapters within the accessibility principles that cannot be mapped directly to perception, activation, or comprehension, but which are related to all of them: safety and equivalent privacy requirements, avoiding personal risks, using the system efficiently, being able to use our assistive products with the system, and other cross-cutting issues.

Next, we are going to try to outline a sequence that will allow us to methodologically go through the tables we need to complete to specify accessibility and usability needs in our user requirements — and to do so in a systematic way that helps us avoid forgetting any steps along the way.

To do so, we are going to watch a video in which Claudia uses a voice recogniser to perform a very specific task: dictating a sentence to her word

text processor.

Claudia
"Dear Margarita,"…

Description
After being spoken, the sentences appear written in the document.

Claudia
"Everything's going great." "Start new line."

Description
The cursor moves to the next line, and the message "New line" appears on the screen.

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To develop the requirements of this brief sequence, we are going to establish a series of steps.

First, the perception of the existence and position of controls. This is not a system with visual or tactile controls — they are all voice controls. Therefore, the perception of the existence and position of controls has a slightly special meaning here. What happens is that Claudia has already read the help section and knows which controls she needs in order to use the system. In this case, the control is very simple: the only thing she has to do is pronounce the sentence she wants the voice-recognition system to transcribe into her document.

Next, she has to perceive the state of those controls. In this case, Claudia must ensure that the system is listening to her voice. The voice-recognition system must be active. Next, she has to activate the control, which in this case means dictating her sentence. She must then perceive that this activation has taken effect. In this case, she herself sees how the sentence she has dictated is transcribed into the Word document. And then the sequence would begin again when Claudia continues using her word processor.

Let us not forget something very important: all of this necessarily implies that Claudia is able to understand both the output generated by the system and the way to control the system.

We could summarise this interaction sequence as the need to perceive, then to activate, and then to comprehend —an iterative process, all of it situated within the cognitive context. One must be able to understand how the system works.

We must not forget that, in addition to the accessibility principles, we must take into account the usability principles. We are going to propose a very basic, and probably incomplete, mapping because it may help us. For the need of perception, we find a heuristic directly related to it: visibility of the system status. For activation, we have the heuristics of user control and freedom, error prevention, and flexibility and efficiency of use. For comprehension, we have a match between the system and the real world, consistency and standards, recognition rather than recall, a minimalist aesthetic and design, help users recover from errors, and help and documentation.

This mapping is very simplistic; we will likely find other types of relationships. It is only a way of introducing this relationship, which really does exist, between accessibility and usability.

For example, look at the case of visibility of system status: here we are seeing the icon that Claudia sees, which indicates that the system is ready to listen to her. But in addition to perceiving it, we must be able to understand it. We must be able to understand that this icon means exactly that — something which is not always necessarily obvious.

Very well, as a conclusion, in this video we have seen the interaction sequence — perceive, activate, understand — and requirementS that must be taken into account: those of equivalent safety and privacy, avoiding personal risks, using the system efficiently, being able to use assistive products, and other cross-cutting issues. Finally, we have seen an initial introduction to the relationship between accessibility requirements and usability requirements. Until the next video.